FMC Technologies

Syntron®
DL-1-A Dental Vibrator

■ Installation ■ Operation ■ Maintenance

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SM1115- 071703

Thank you for buying your equipment from FMC. This manual will help you to understand how your equipment operates and what is required to maintain peak performance. Please read it thoroughly and keep it on file for reference.

Your satisfaction is important to us, so pease direct any comments to our Marketing Communications Department.

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The DL-1-A Dental Vibrator is ”classsifed by Underwriters Laboratories Inc.® with respect to electric shock, fire and mechanical hazards only in accordance with UL2601-1, (UL2601-1-XX, if applicable), (UL2601-1-2-XX, if applicable)”.

The DL-1-A Dental Vibrator is also CSA certified per file #LR 53131.

SAFETY INFORMATION

WARNING: These instructions and safety precautions must be followed. There is a hazard of electrical shock to the operator.

NOTE: Local safety codes and regulations must be considered when operating this equipment.

WARNING: Failure to follow these instructions and procedures could result in personal injury, unsatisfactory performance, and /or damage or shortened service life.

WARNING: Unauthorized modifications to the equipment may present a safety hazard to the operator and void the warranty.

Modifications or additions to the equipment should not be made without first cosulting FMC Corporation.

WARNING: Power supply voltage and frequency must be the same as that designated on the nameplate.

Power supply voltage and frequency other than that designated on the nameplate may damage the unit.

Product safety labels must be highly visible. Check their visibility regularly. Do not remove or paint over safety labels. Contact FMC Corporation for an additional supply, free of charge, if labels

need replaced,

INSPECTION AND LONG TERM STORAGE

Upon receipt, carefully unpack and inspect the DL-1-A Dental Vibrator for any damage that may have occurred during shipment. If damage is found, notify the shipping carrier and FMC immediately.

If the DL-1-A Dental Vibrator is to be stored for an extended period of time, store the unit indoors in its original shipping carton. Ambient temperature should not exceed 100°F (40°C). Outdoor storage or storage under extreme conditions is not recommended.

INTRODUCTION

The Syntron® DL-1-A Dental Vibrator is designed for the processing of dental molds. A magnet assembly produces a vibrating action which is transmitted to the deck through a system of leaf springs. The control assembly includes an ON/OFF switch, a rheostat to control the amplitude of vibration, and rectifier to convert from AC to DC current. The DL-1-A vibrator weighs approximately 25 pounds and must be lifted by the base only.

The DL-1-A vibrator is rated at 115V or 230V, as specified at the time of manufacture. It can operate at either 50 or 60 Hz, with no adjustments required. At 60 Hz operation, the vibrator produces an operating frequency of 3600 vpm. 50 Hz operation produces an operating freqency of 3000 vpm. If a different vibration output is desired, then the air gap must be changed (refer to Air Gap, page 4).

WARNING: Power supply voltage and freqency must be the same as that designated on the nameplate.

INSTALLATION

Place the DL-1-A vibrator on a solid support that does not vibrate while the vibrator is operating. The deck should not touch any rigid object or adjacent surface; it must be able to vibrate freely.

CAUTION: Lift the vibrator by the base only. Lifting it by the top deck may cause damage.

OPERATION

Once the dental vibrator is in its operating location, plug it into a self-grounding receptacle. Turn the switch to the ON position and place a dental mold on the deck. The strips on top of the deck will keep the mold in position while the investment is poured.

Turn the rheostat knob clockwise to increase vibration amplitude. Turn the switch to the OFF position to stop the vibrator.

MAINTENANCE

WARNING: Disconnect and lock out the power supply before performing any maintenance on this equipment.

Use a mild household cleaner and water to clean the dental vibrator. Do not use excessive water; a damp cloth is sufficient. Wipe the unit dry. DO NOT use acids for cleaning. To remove dental cement from the neoprene deck, remove the deck and simply flex it. Do not twist it tightly or crease the deck.

If an apparent problem exists, do not operate the dental vibrator. If parts are found to be defective, they must be replaced immediately.

AIR GAP

The air gap is the space between the pole faces of the armature and the core. Low current draw indicates that the air gap is too narrow, resulting in a striking condition.

WARNING: A striking condition can cause damage to the vibrator. If a striking condition exists, immediately shut off power to the vibrator.

Excessive current draw indicates that the air gap (the gap between the core and the armature pole faces) is too wide. An excessive current draw can result in heat buildup. The dental vibrator should run warm, but not too hot to touch.

WARNING: Do not operate the vibrator if there is excessive current draw.

If either condition exists, an adjustment of the air gap is required. The air gap must be adjusted while the vibrator is in operation.

WARNING: When adjusting the air gap, exercise caution to prevent electrical shock to personnel or damge to the vibrator.

To adjust the air gap, perform the following steps:

Place the dental vibrator in a position to gain access to the adjustment screw on the bottom of the vibrator. FMC recommends placing the unit between two tables (sse Figure 1). Supporting the vibrator by the deck, or hand-holding the unit will adversely affect the air gap adjustment since the unit must be supported by its rubber feet.

Plug in the electrical cord and turn on the vibrator. Turn the dial to ”100”. Using a 5/32-inch Allen wrench, loosen the socket head cap screw located in the core on the bottom of the vibrator.

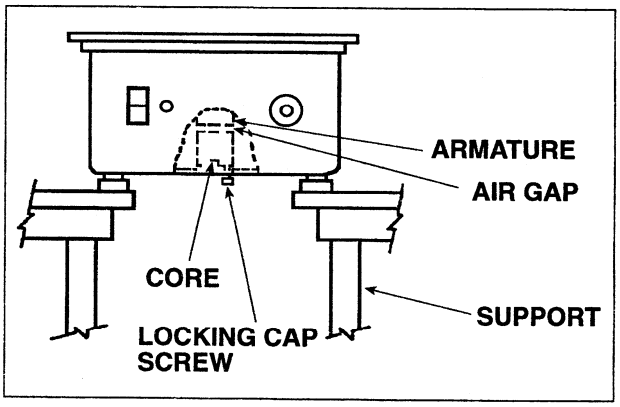


FIGURE 1: ADJUSTING THE AIR GAP

Use a slotted blade screwdriver to adjust the air gap using the slot in the core. Turn the core clockwise to reduce the air gap (lower the current draw), and counterclockwise to widen the air gap (increase the current draw). To adjust the air gap to the proper setting, turn the core clockwise until a striking condition exists, then immediately turn the core counterclockwise, just until the striking stops. Check the current draw.

NOTE: When using an analog tong meter to read the vibrator current, the meter reading must always be multiplied by a factor 1.7. Due to the waveform characteristics of the vibrator, the tong meter does not reveal the current rating designated on the nameplate. When using a true RMS meter, the current is as indicated.

When the proper air gap has been achived (indicated by the current draw), lock the core in place by turning the socket head cap screw in the end of the core. The dental vibrator is now ready for further operation.

OPERATING SPECIFICATIONS

MAXIMUM LOAD	OPERATING FREQUENCY	CURRENT RATING
10 lb	3600vpm	1.0 Amps – 115V 0.5Amps – 230V

FIELD REPAIRS

The following tools are required to adjust the air gap or make field repairs to the dental vibrator:

- 5/32 inch Allen wrench
- 1/2 inch socket wrench
- Slotted blade screwdriver
- Ammeter

TROUBLESHOOTING

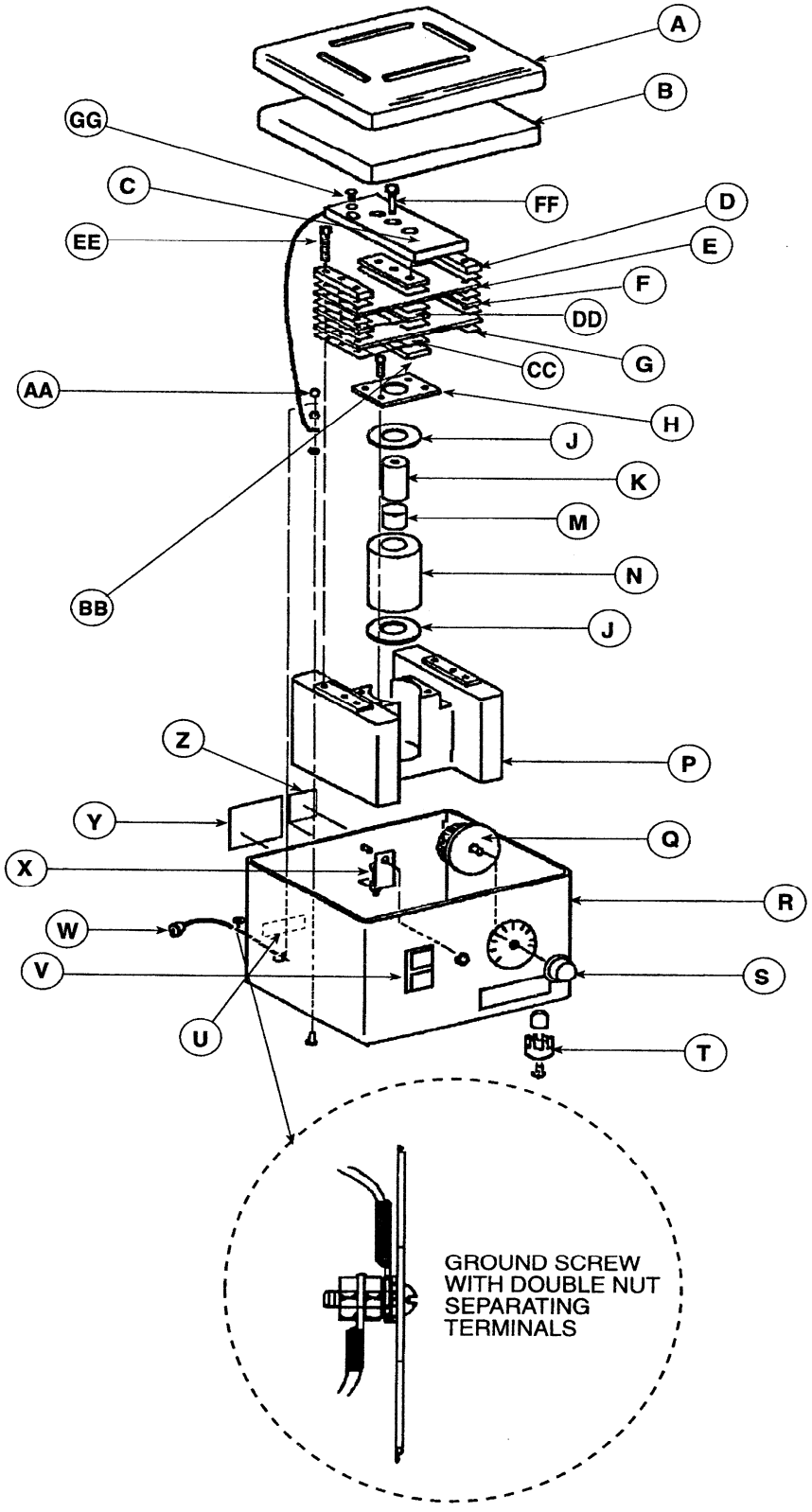
PROBLEM	CAUSE	CORRECTION
Unit does not Operate	Defective rheostat Shorted wiring, loose connection, no power to the unit	*Replace Repair
Unit operates, but will not vibrate	Unit in contact with rigid object Or adjacent surface Defective rubber feet Defective springs Defective rectifier	Isolate unit *Replace *Replace *Replace
Excessive noise	Armature and magnet Assemblies making contact	Adjust air gap

* Replace only with parts supplied or recommended by FMC Technologies.

DL-1-A DENTAL VIBRATOR PARTS LIST

ITEM	DESCRIPTION	QTY	PART NO
A	Rubber Deck	1	B-102616
B	Top Cover	1	A-91806
	Cap Screw, Fl. Hd. Stl. (1/4”-20 x 5/8”)	4	H0402800
C	Cover Support	1	A-91814
D	Spring Clamp	2	A-91816
E	Spring	2	B-224564-002
F	Spacer	2	A-97983-2
G	Spacer	8	A-91817
H	Coil Clamp	1	A-91810
	Cap Screw, Hex Hd. (5/16”-18 x 1/2”)	4	H0306401
J	Coil Washer	2	A-81849
K	Armature	1	A-91812
M	Core	1	A-91811
	Cap screw, Soc Hd. (#10-32 x 1/2”)	1	H0419600
N	Coil (115V)	1	A-91805-A
	Coil (230V)	Only	A-91805-B
P	Base	1	B-90992-A
Q	Rheostat	1	0052X168
R	Base Cover	1	B-91807-A
S	Lockwasher, Ext Tooth, Shakeproof (3/8”)	1	H0113204
	Dial	1	A-87522-A
	Knob	1	0118X013
	Tube	4	0035X001
T	Lockwasher, Shakeproof (1/4”)	4	H0112705
	Foot	4	0297X024
	Mach. Screw, Rd. Hd. (1/4”-20 x 3/4”)	4	H0205101
U	* Label (Disc. Elec.)	1	A-125694
V	Switch	1	0051X477
W	Cable Assembly (115V)	1	A-99587-A
	Cable Assembly (230V)	Only	A-107362
X	Rectifier Assembly (115V)	1	A-175582-B
	Rectifier Assembly (230V)	Only	A-175582-C
Y	* Nameplate	1	A-97338
Z	* Label (UL)	1	A-133985-B
AA	Machine Screw, Rd. Hd. Br. (#10-32 x 1/2”)	1	H0203402
	Lockwasher (#10)	2	H0112404
	Groundstrap Assembly	1	A-164473-A
	Hex Nut, Br. (#10-32)	2	H0101003
BB	Armature Plate	1	A-91813
CC	Spacer	4	A-91819
DD	Spacer	2	A-91818-2
EE	Cap screw, Hex Hd. (5/16”-18 x 1-1/8”)	8	H0307301
FF	Cap Screw, Hex Hd. (5/16”-18 x 1-1/2”)	1	H0307501
GG	Mach. Screw, Rd. Hd. Br.(#10-32 x 3/8”)	1	H0203102
	Lockwasher #10 int. shakeproof Ni. Pl.	2	H0112305

* Do not remove or paint over safety labels. If safety labels need replaced, contact FMC Corporation for an additional supply, free of charge.



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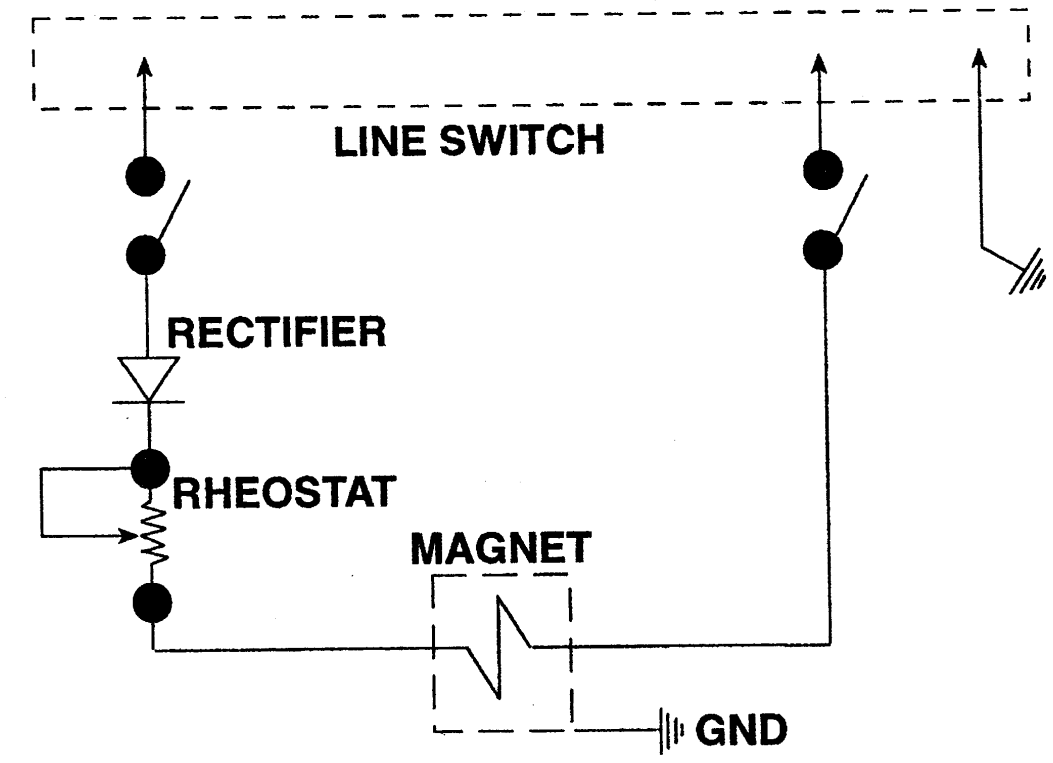

DL-1-A DENTAL VIBRATOR WIRING DIAGRAM

FMC Technologies, Inc. reserves the right to alter at any time, without notice and without liability or other obligations on its part, materials, equipment specifications and models. FMC Technologies, Inc. also reserves the right to discontinue the manufacture of models, parts, and components thereof.